SOCIETY OF ARTS.

FRIDAY, JULY 15th, 1853.

MEETING OF COUNCIL.

Wednesday, July 13th, 1853.

At a meeting of Council, held on the 13th inst., the following gentlemen were elected to serve on the thirty Standing Committees of the Society, in accordance with the By-Laws, which require that each of such Committees shall consist of three members chosen annually by the Council; provided that one at least of every such three persons shall not, at any time during the previous year, have served on the Committee for the class in respect of which he shall be chosen.

I. RAW MATERIALS.

Class I.—Mining, Quarrying, Metallurgical Operations, and Mineral Products.—Prof. D. T. Ansted, F.R.S.; W. Bird; T. Sopwith, F.R.S.

Class II.—Chemical and Pharmaceutical Processes and Products.—Dugald Campbell; Dr. Playfair, F.R.S.; C. Tomlinson.

Class III.—Substances used as Food.—H. Roberts; A. Waterhouse; Don Manuel de Ysasi.

Class IV.—Animal and Vegetable Substances used in Manufactures.—W. Parker Hammond; A. Smee, F.R.S.; G. F. Wilson.

II. MACHINERY.

Class V.—Machines for direct use, including Carriages and Railway and Naval Mechanism.—W. B. Adams; J. G. Appold, F.R.S.; T. R. Crampton.

Class VI. — Manufacturing Machines and Tools. — Henry Hensman; C. W. Siemens; J. Whitworth.

Class VII.—Civil Engineering, Architectural and Building Contrivances.—J. Glynn, F.R.S.; C. H. Gregory; C. H. Smith.

Class VIII.—Naval Architecture and Military Engineering, Ordnance, Armour, and Accoutrements.—Capt. J. M. Adye, R.A.; W. W. Saunders, F.R.S.; H. Wilkinson.

Class IX.—Agricultural and Horticultural Machines and Implements.—G. Cottam; J. J. Mechi; Prof. J. Wilson, F.R.S.E.

Class X.—Philosophical Instruments and Processes depending upon their use; including Musical, Horological, and Surgical Instruments.—Rev. W. W. Cazalet; J. Glaisher, F.R.S.; F. Seymour Haden.

III. TEXTILE FABRICS.

Class XI. — Cotton Manufactures.—J. Allison; J. Jones; John Scott.

Class XII.—Woollen and Worsted Manufactures.—W. Barber; J. P. Bull; R. Milligan, M.P.

Class XIII.—Manufactures in Silk and Velvet.—F. Bennoch; S. Lewis; T. Winkworth.

Class XIV. — Manufactures from Flax and Hemp.—T. C. Hayward; W. Leaf; J. Wilkinson.

Class XV.—Mixed Fabrics, including Shawls.—T. Gaury; G. Hairs; J. R. Lavanchy.

Class XVI.—Leather, including Saddlery and Harness: Skins, Furs, Feathers, and Hair.—F. Leake; J. A. Nicholay; C. A. Preller.

Class XVII.—Paper and Stationery, Printing, and Bookbinding.—T. De la Rue; Charles Knight; C. Whittingham.

Class XVIII.—Woven, Spun, Felted, and Laid Fabrics, when shown as specimens of Printing or Dyeing.—A. Lapworth; W. Liddiard, jun.; J. C. Wakefield.

Class XIX.—Tapestry, including Carpets, Floor-cloths, &c., Lace, Fancy Embroidery, and Industrial Works.—Peter Graham; G. Pollock; G. F. Urling.

Class XX.—Articles of Clothing for Immediate Personal or Domestic Use.—J. D. Allcroft; Donald Nicoll; A. Salomons.

IV. METALLIC, VITREOUS, AND CERAMIC MANUFACTURES.

Class XXI.—Cutlery and Edge Tools.—Heather Bigg; T. Weedon; R. Williams.

Class XXII.—Iron and General Hardware.—D. Aspinal; E. B. Denison; C. B. Warner.

Class XXIII.—Works in Precious Metals, Jewellery, Articles of *vertu*, &c.—J. H. Watherston; Joseph Angell; S. H. Gass.

Class XXIV.—Glass.—D. Pierce; Nathaniel Powell; Edward Wilson.

Class XXV.—Ceramic Manufactures, China, Porcelain, Earthenware, &c.—H. Cole, C.B.; J. Finch; W. P. Phillips.

Class XXVI.—Decorative Furniture and Upholstery, Paper Hangings, Papier Maché, and Japan Goods.—John Bettridge, jun.; J. G. Crace; S. M. Hubert.

Class XXVII.—Manufactures in Mineral Substances used for Building, or Decorations, as in Marble, Slate, Porphyries, Cements, Artificial Stones, Clay, &c.—Frank Franklin; Prof. Tennant, F.G.S.; G. F. White.

Class XXVIII.—Manufactures from Animal and Vegetable Substances, not being Woven, Felted, or Laid.—R. T. Fauntleroy; N. Lindley; T. I. Miller, M.P.

Class XXIX.—Miscellaneous Manufactures and Small Wares. W. De la Rue, F.R.S.; R. Hendrie; Capt. Laffan, M.P.

V.—FINE ARTS.

Class XXX. (*a.*)—Sculpture, Modelling, Carving, &c.—John Bell; Hon. E. C. Curzon; H. Weigall.

(*b.*)—Painting, Engraving, &c.—F. S. Carey; T. Creswick, R.A.; B. W. Hawkins.

(*c.*)—Architecture.—R. D. Chantrell; G. Mair; W. Tite, F.R.S.

(*d.*)—Stained Glass, Enamels, Mosaics, &c.—M. R. Hawkins; H. Porteus Oakes, M.P.; Capt. F. E. Wilmot, R.A.

The Council then considered the question of the re-appointment of the Institutes' Committee. It appeared that nearly all the members of that Committee had now been elected into the Council; and the Council being of opinion that it would tend to the more prompt transaction of the business, that it should for the future be undertaken by the Council, it was Resolved not to re-appoint a separate Committee for Institutes' business.

The following Institution was taken into Union:

280. Norwood Library and Reading-room.

NOTICE TO INSTITUTIONS.

The Council have much gratification in announcing that, pending their negotiations with the publishers, they have received a communication from the Representative of the late Colonel Gurwood, offering to the Institutions in Union copies of the well-known "Despatches of the Duke of Wellington," published at eight guineas, in eight volumes, royal octavo, bound in cloth, for four guineas. The Council wish particularly to call attention to this favourable opportunity of obtaining on very liberal terms a work which, they presume to say, should be found in every public library. They will receive orders for the work, which should be accompanied by a Post-office order for four guineas, and will arrange for its prompt transmission.

FRENCH EXHIBITION OF 1855.

With reference to the discussion which took place upon the French Exhibition of 1855, at the meeting of the Society on the 1st June, we understand that a despatch has been received by Lord Clarendon, that goods, the importation of which is now prohibited, will, if shown at the approaching exhibition, be admitted at an *ad valorem* duty of thirty per cent.

THE PAPER DUTY.

QUERIES PROPOSED BY THE SOCIETY OF ARTS, MAY 4th, 1853.

No. 2.—To Wholesale Stationers.

The following are the replies which have been received to the second set of Queries on this subject; and are published in continuation of those given last week.

1. Does the Tax affect injuriously the quality and varieties of Paper as supplied by the Manufacturer?

Messrs. BROWN and KING say, "We do not think it does."

Messrs. CRIPPS and STARKEY say, "Not at all."

Messrs. DIXON, MARSDEN, and HALL say, "This is a question for the manufacturer, rather than the dealer. So far, however, as we are able to judge, we think it does."

Messrs. DOBBS, KIDD, and Co. say, "Not at all, that we are aware of."

Messrs. HEALEY and Co. say, "We are paper manufacturers, and make the largest quantity of mill-boards by quite double any other makers in England, &c. We know the tax does not interfere with the quality, &c., as supplied."

Messrs. HYDE and Co. say, "There cannot be two questions on this matter; it does."

Mr. S. MAGNUS says, "I think not."

Mr. D. NATOWSKI says, "Decidedly."

Messrs. J. W. POUNCEY and SONS say, "It affects injuriously the thickness of papers; consumers being tempted to use too thin papers in consequence of the increased price caused by the duty, which is on weight. A far more serious evil is caused by the duty and the Excise regulations attending it, through the checks they give to experiments, which would lead to improvements in qualities, and production of varieties, applicable to purposes not yet thought of. A total repeal of the duty, by leaving the manufacturer at liberty to employ his ingenuity fully, would probably be followed by important consequences."

Messrs. SPALDING and HODGE say, "No."

Messrs. VENABLES, WILSON, and TYLER say, "We do not consider that it does so in any manner."

Messrs. WIGGINS, TEAPE, and Co. say, "No."

2. Does it interfere with the quantity?

Messrs. BROWN and KING say, "It may, partially."

Messrs. CRIPPS and STARKEY say, "By no means."

Messrs. DIXON, MARSDEN, and HALL say, "If by this question is meant, 'Would the consumption increase if the duty were repealed?' we have no hesitation in replying that it would increase very greatly."

Messrs. DOBBS, KIDD, and Co. say, "No."

Messrs. HEALEY and Co. say, "We consider it might probably interfere with the quantity of brown paper and other common papers used, but not in the least with printing or writing paper."

Messrs. HYDE and Co. say, "All fiscal imposts have the effect of restricting the manufacture; none more so than the paper duty."

Mr. S. MAGNUS says, "I think there would be more made, but by little makers; consequently, of inferior quality."

Mr. D. NATOWSKI says, "Yes."

Messrs. J. W. POUNCEY and SONS say, "Yes; by increasing price it diminishes consumption; and it is right to observe that the Excise regulations referred to above tend to increase price beyond the duty itself; and we believe that ½*d.* per lb. (one-third of the duty) would not be more than sufficient in some cases to pay the manufacturers for the evils of those regulations."

Messrs. SPALDING and HODGE say, "No."

Messrs. VENABLES, WILSON, and TYLER say, "No; as the Excise do not interfere with the manufacture."

Messrs. WIGGINS, TEAPE, and Co. say, "No."

An ANONYMOUS CORRESPONDENT says, "Yes; many goods that foreign manufacturers pack up in paper, are in England merely tied or strung up; and when packed in paper, a common or thin quality is used."

3. Does it prevent the ready and economical employment of capital invested in the Trade?

Messrs. BROWN and KING say, "We think not."

Messrs. CRIPPS and STARKEY say, "It does not."

Messrs. DIXON, MARSDEN, and HALL say, "Among the manufacturers, certainly; but not among dealers."

Messrs. DOBBS, KIDD, and Co. say, "We think not."

Messrs. HEALEY and Co. say, "We do not think it interferes with the economical employment of capital, but we know it prevents many business men from going into the trade, on account of the risk the duty involves; and consequently makes mill property more hazardous."

Messrs. HYDE and Co. say, "The effect of the Excise duty on paper has been to drive out of the market the men of small means and much ingenuity. The trade is yearly becoming more and more restricted; in fact, a monopoly in the hands of a few men of large capital, &c."

Mr. S. MAGNUS says, "I think not."

Mr. D. NATOWSKI says, "I have no doubt of it."

Messrs. J. W. POUNCEY and SONS say, "This is a difficult question to reply to. That it embarrasses the employment of capital may be inferred from the previous answers; but it must be allowed that the credit given by the Excise for the duty enables a manufacturer to make the duty the means of capital, disadvantageously to the real capitalist."

Messrs. SPALDING and HODGE say, "Not at all."

Messrs. VENABLES, WILSON, and TYLER, say, "Not in any way."

Messrs. WIGGINS, TEAPE, and Co. say, "No."

4. Does it produce disappointment in the execution of orders, from the delays occasioned by the Excise regulations?

Messrs. BROWN and KING say, "In some instances, very seriously."

Messrs. CRIPPS and STARKEY say, "To so trivial an extent, that it is scarcely worth notice."

Messrs. DIXON, MARSDEN, and HALL say, "Constantly."

Messrs. DOBBS, KIDD, and Co. say, "We do not find that it does."

Messrs. HEALEY and Co. say, "Very little indeed; you can charge paper one day, and send it to town, or elsewhere, the following morning, which is soon enough."

Messrs. HYDE and Co. say, "It (the duty) does cause considerable delay in the execution of orders; the manufacturer is fettered to a considerable extent, and has not free scope in his trade."

Mr. S. MAGNUS says, "Very seldom. In writing to a manufacturer, if the paper is made, it can be sent in a very *few hours* after the order is received."

Mr. D. NATOWSKI says, "Undoubtedly."

Messrs. J. W. POUNCEY and SONS say, "Yes. It causes unnecessary loss of time in the delivery of papers from the mill; and we have known orders refused for papers required in great haste, on account of the delay which might be caused by the Excise regulations."

Messrs. SPALDING and HODGE say, "Sometimes. This is the worst objection to the tax."

Messrs. VENABLES, WILSON, and TYLER say, "At the present time, the utmost delay it can occasion is twenty-four hours, the time required for it to remain after being charged with duty; this delay is counter-

acted generally by the exertion of the maker to have it charged *so much* (twenty-four hours) before the conveyance intended to take it to its destination is ready to start."

Messrs. WIGGINS, TEAPE, and Co. say, "No."

5. Would the removal of it lead to an extended demand from abroad?

Messrs. BROWN and KING say, "Not to a great extent, the drawback on export being already allowed."

Messrs. CRIPPS and STARKEY say, "Not in the least."

Messrs. DIXON, MARSDEN, and HALL, say, "We think not to any great extent, drawback being now allowed upon all paper exported."

Messrs. DOBBS, KIDD, and Co., say, "We cannot see that it would, as the drawback now allowed enables us to export as freely as if there were no tax at all."

Messrs. HEALEY and Co. say, "We most certainly think not. France and the United States are free, and no doubt chiefly supply foreign markets, and still would be able to do so cheaper than us. Besides, we get the drawback, and always sell foreigners the paper less the duty, the same as though never imposed."

Messrs. HYDE and Co. say, "The price of paper has lately increased, and is increasing. We depend, to a considerable extent, on foreign markets for rags. The removal of the duty just now would, it is presumed, be a most judicious step; as from the large demand, home and foreign, we might, were so absurd and onerous an impediment to the ready employment of capital and men's brains removed, now begin to beat all our foreign competitors, and supply, without fear of successful competition, the greater portion of the civilized world."

Mr. S. MAGNUS says, "I think the reverse, as, should the duty be repealed, the price of paper would not generally be reduced the full amount of the duty, which we receive as drawback."

Mr. D. NATOWSKI says, "There can be no question of it."

Messrs. J. W. POUNCEY and SONS say, "In no other way than as it leads to diminish demand generally."

Messrs. SPALDING and HODGE say, "No, for the drawback is allowed."

Messrs. VENABLES, WILSON, and TYLER, say, "None, because at present the full amount of the duty is allowed to the exporter at shipment."

Messrs. WIGGINS, TEAPE, and Co., say, "No."

An ANONYMOUS CORRESPONDENT says, "We find a great deal of trouble and annoyance in packing paper for export, and getting the drawback. We do a great deal of business in the Channel Islands, and can state for a fact that paper sent there by ourselves and other houses pays nearly *double profit*, which is necessary to remunerate houses for loss of time and trouble in getting the drawback. The Excise regulations prevent *small and frequent* consignments, and give the foreign maker an advantage, as he can ship direct to the shopkeeper or consumer, while it only answers in England to consign to large dealers."

6. Does the Excise mark upon each ream of paper, which is always above the real weight, and for which the manufacturer has an allowance, lead to mistakes and disputes between the stationer and consumer?

Messrs. BROWN and KING say, "We think not, now being generally understood in the trade."

Messrs. CRIPPS and STARKEY say, "No, it does not, being an understood thing throughout the trade."

Messrs. DIXON, MARSDEN, and HALL, say, "This is a most vexatious and unwise regulation; the consumer considering himself defrauded by the paper weighing less than it is marked, while the manufacturer and stationer, knowing that the 'marking up,' as it is technically called, is allowed by the Excise, think they do no wrong. It becomes the more vexatious from the circumstance of some manufacturers not availing themselves of the privilege of 'marking up,' and from the fact of a certain class of papers, which are always sold by *weight*, and not at a *ream price*, being often made to weigh considerably more than they are marked. It will be seen at once that this want of uniformity of practice must produce great confusion, misunderstanding, and dispute."

Messrs. DOBBS, KIDD, and Co., say, "We have never found it does in a single instance."

Messrs. HEALEY and Co. say, "This is particularly the stationers' wish, and I am not aware of any inconvenience arising from it. It would, as a rule, be better for the manufacturer to sell scale weight."

Messrs. HYDE and Co. say, "As retail stationers, buying our paper in the folio, cutting it up into various sizes before it reaches the consumer, we cannot give a correct opinion on this point. Printers, who buy in large quantities, know (and ascertain) what the real weight should be, and, we presume, have no difficulty in getting any error rectified."

Mr. S. MAGNUS says, "No; the generality of consumers seldom know anything about weight; they buy by the ream."

Mr. D. NATOWSKI says, "This is continually the case. Disputes and unpleasantries frequently occur between the stationers and tradespeople, in consequence of the weight marked on the wrappers exceeding the actual weight."

Messrs. J. W. POUNCEY and SONS say, "The manufacturer has no allowance on account of the marked weight on the Excise label; he pays for the real weight; the marked weight may be below as well as above the real weight. Many reams are weighed at one draught, but every ream of the draught may not weigh alike; and some papers also lose and some gain weight by time. On these accounts a per centage (five per cent.) departure from the real weight is permitted. A practice has grown up of generally marking a weight greater than the real weight, and buyers are often deceived thereby into supposing the paper to be heavier than it really is."

Messrs. SPALDING and HODGE say, "Not necessarily. When it does, it is the stationer's own fault." They also add, that the statement that the manufacturer has an allowance for the mark being above the real weight is incorrect.

Messrs. VENABLES, WILSON, and TYLER, say, "Very rarely, because it is generally known to consumers that the Excise allow the weight marked on the ream to be five per cent., and not more, in advance of real weight. Without this regulation of the Excise there would doubtless be much greater cause for disputes and differences of weight."

Messrs. WIGGINS, TEAPE, and Co., say, "Yes."

7. Please to state any facts relative to the above, or any other points bearing on this inquiry.

Mr. C. D. COLLET says, "You will find very few wholesale stationers in favour of repealing the duty; they have all the *poor* manufacturers under their control, as the latter, having only six weeks' credit for the

duty, are always in want of ready money. The stationers will not allow a paper-maker in the country to sell directly to a bookseller in London."

Messrs. HEALEY and Co. say, "We consider a stationer is not the person to apply to in this manner, as most people are governed by interest, and we are inclined to think that wholesale stationers would prefer the duty to remain upon the paper; but Chambers, Knight, Bohn, &c., &c., would prefer it off."

Messrs. HYDE and Co. say, "*Good paper* is dear, and the price has a still further tendency to advance. The penny postage, joined to the reduction of the duty from 3*d.* to 1½*d.*, gave a great impetus to the paper trade. We are on the eve of an imperial if not a universal application of the penny postage system, and on the eve of a comprehensive system of education of the million. For these and many other reasons, all fiscal imposts on the manufacture of that article by which the world is civilized should be at once removed. Such is the demand at present for various qualities of paper, that orders cannot be executed; but if years ago this Excise duty had been *in toto* repealed, we should have found no such difficulty in execution of orders. There is now no difficulty in buying corn at a reasonable price, nor would there have now been so restricted a supply of paper consequent, in great part, on so limited a number of makers as compared with former years."

Messrs. J. W. POUNCEY and SONS say, "For the full investigation of the effects of this duty, it is fit that it should be known that the greatest importation of paper for home consumption is of a paper (extra thin bank post) where the duty is trifling, forming a very small proportion of the value, and not of thick paper, where the duty would often amount to twenty-five or thirty per cent. It is not creditable to English manufacturers that they have not succeeded in beating the foreign manufacturer in this as they have in other papers."

Messrs. SPALDING and HODGE say, "The abolition of the duty would not probably lower the price materially. An increased demand for paper would raise to an exorbitant price the raw material, the supply of which is already becoming daily more inadequate."

Messrs. VENABLES, WILSON, and TYLER, say, "We are of opinion that if the duty was taken off, the public (the masses) would derive little or no advantage from it. All the cheap publications would remain the same price still; the daily papers might be reduced, but not the weekly ones, neither educational books; and the reduction on paper to any but *large* consumers would be of trifling value, not appreciable."

An ANONYMOUS CORRESPONDENT says, "The duty is 14*s.* 8*d.*, on which the maker, agent, wholesale dealer, and retailer have to charge a profit; so that the consumer pays fully double that amount, and in some instances more. The retail profit on *writing paper* is large, and the duty fully 4*d.* or 6*d.* per pound to the consumer."

PRIZE ESSAY ON LITERARY, SCIENTIFIC AND MECHANICS' INSTITUTIONS.*

THE Essay for which Mr. Hole has obtained the Society's Medal, and a premium of 50*l.*, is divided into four chapters, treating respectively of the History of these Institutions; the Objects and Methods of Adult Instruction; Business Management of Institutions; and Union of Institutes. It comprises also six Appendices, reproduced from various sources, being the evidence at length, on several topics discussed in the Essay. They are, A. Memorials to the Royal Commissioners, praying for the Establishment of a Central Institution of Arts and Manufactures. B. Amusements. C. Subjects which ought to be known in various trades. D. Exhibitions of Works of Art, &c., &c. E. Itinerating Libraries for Villages. And, F. Museums.

The history of Mechanics' Institutes is briefly given; and it is considered, that whatever may be thought of them as educational establishments, they have certainly helped to form a sound public opinion as to the necessity and duty of popular education. The large circulation of their books has cultivated a taste for reading; and the cheap concerts originated by the Manchester Mechanics' Institution, have created a popular feeling for good music; their lectures have facilitated the progress of social and sanitary reform, as by these means people have learnt some little about ventilation, about draining, about smoke-consuming, and other practical matters. While politics are excluded, newspapers are not; and hence the tone of thought on many political subjects has become elevated. The primary objects, however, of their establishment have not been attained, as they have failed to attract the mechanic class (using the term in its generic sense, as including all classes of operatives), and to impart scientific instruction. One great and general cause of this state of things, "is the deficiency of elementary training for children. The adult has to commence that process in the Institution, which ought to have been completed before he entered its walls, and the time which he should be spending in the temple of knowledge, is taken up in mastering the keys of its portals." Other causes may be traced to the miscellaneous character of the subscribers; to the changes which took place in the Institutes between the years 1830—2, owing to political causes; and to the means adopted to revive the prestige then lost. The establishment of Lyceums, or People's Institutes, in which there was a larger share of the amusing, and to which the subscription was less than one-half, induced a corresponding change, though to a limited extent, in the Mechanics' Institutes; hence they became less strictly educational, and their means for doing good were curtailed. The three principal methods employed by them for the diffusion of knowledge,—the library, the lectures, and the classes, are then severally discussed; the reason assigned for the failure of lectures being, "that the people very often derive no real *advantage* from them," as they bear "no relation to the previous acquisitions of the auditory," and are frequently but "a series of experiments, the reasons and nature of which are scarcely apprehended, still less remembered, by the listener." * * * "The most valuable lectures are those which partake of the nature of class instruction. The course on any subject should be sufficient in number to enable the teacher to convey adequate information on the principal leading points; and it should be accompanied by either written or oral examinations, and frequent reviews of past lessons. A course of winter lectures so pursued would have results far more valuable than any number of miscellaneous lectures."

The concluding paragraphs of this chapter are devoted to the question of female education, which was probably not contemplated by the earlier founders of Mechanics' Institutes, and in which direction no great advance has since been made. After quoting from the Report of the Secretary to the Huddersfield Female Institute, Mr. Hole closes this part of the subject by remarking, in

* "An Essay on the History and Management of Literary, Scientific, and Mechanics' Institutions; and especially how far they may be Developed and Combined so as to promote the Moral Well-being and Industry of the Country." By James Hole, Honorary Secretary to the Yorkshire Union of Mechanics' Institutes. Published under the sanction of the Society of Arts. 8vo. Longman and Co., 1853.

reference to domestic servants, that "we have tried the system of ignorance, and *that* fails; let us try *that* of knowledge and kind treatment, and see if that will work a change."

The second chapter, which treats of the objects and methods of adult instruction, discusses the twofold character of education necessary for the artizan: general, so as to make him a better man and a better citizen; and industrial, so as to make him a more able and more productive workman. Our deficiency in the latter respect is strongly commented on, and many quotations are given from Dr. Lyon Playfair's lecture on Industrial Education on the Continent, corroborative of this opinion. The Edinburgh School of Arts is pointed to as a good model, and it is considered that "there is nothing in its programme which might not at once be adopted in all Institutes in the large towns, and, in part, in many of those of the smaller ones, if only the means existed of providing adequate instruction." At present "the smallness of the number of scholars in adult evening classes arises from want of teachers rather than scarcity of those who need teaching, and are willing to be taught." The provision therefore of properly qualified and properly paid teachers is the first essential, and as there is even now some difficulty in obtaining teachers for elementary instruction, it is feared that for that of a more advanced character this difficulty might amount to an impossibility. It is recommended that examinations and certificates of proficiency should be established as soon as the educational machinery is once placed on a proper footing. It is proposed that in place of discontinuing the lecture system altogether, the number of miscellaneous lectures should be diminished, and be substituted by one or two complete courses during each winter session, on those branches of science for which it was found impossible to provide regular class instruction. Though the introduction of disputed topics into Mechanics' Institutes is inadvisable, yet it is thought that they "*need not* be indifferent to questions affecting the social interests of the working-classes. That they *are* so is one great cause of their present inutility; but to their more intimate participation in those interests, we look for their power increasingly to attract the working-classes." Other methods in which Institutions may operate beneficially in the elevation of the people are then treated of, the establishment of news-rooms, the formation of clubs for providing amusement and recreation, occasional exhibitions, and adopting the system of Penny Savings Banks.

The business management of these Institutions, which forms the subject of the third chapter, chiefly relates to their financial position; and it is said that "the first step required to render these Institutes adequate to the purposes aimed at, is to *increase the means at their disposal.* Unless this is done, we see little chance of their improvement. There are three sources from which such an increase may be derived: 1st, the contributions of the working classes themselves. 2nd, the donations of the wealthy; and 3rd, aid from the State." In regard to the present rate of subscription, it has been found that "in one little village where the management of the Institute happens to be good, as much as 13*s.* per head per annum is contributed; while scores of Institutes with from twice to ten times the population, hobble on with about 1*d.* per week, or 4*s.* per annum from each member." Now, experience indicates that the amount obtainable from the working-classes might be much increased by taking it in small sums. "In the Huddersfield Institute the payments are fortnightly. A pound per year paid weekly, or at short intervals, would be far less formidable than paid at yearly or half-yearly periods, though both modes of payment should be adopted." To the People's College at Sheffield, the working-classes paid 6*d.* per week, and 1*s.* per quarter in addition.

Another source of revenue is the contributions of the wealthy. It has been urged that these Institutions *ought* to be self-supporting, on the same grounds that it is said that "men *ought* to be virtuous, religious, &c., &c.;" but "we might as well refuse our contribution to the Missionary Fund, 'because the Blacks ought to evangelize themselves,' as refuse aid to Mechanics' Institutes because they ought to be self-supporting. When the savage *is* converted, he will support his own church; so when the working man *is* educated, he will support his own college; and to this standard we should endeavour to attain." * * * "Institutions meant to teach mainly the operative classes, and offer good elementary training, like the Huddersfield Institute, or scientific instructions, like the Edinburgh School of Arts, cannot be self-supporting NOW, whatever they may ultimately become. The Huddersfield Institutes' income last year was 650*l.*; of which sum 143*l.* was derived from persons who do not directly participate in the benefits of the Institution, and 507*l.* from the fees of the pupils. The average annual fees from the Edinburgh School of Arts do not amount to above *half the actual expenditure*, the rest being contributed by the wealthy inhabitants of the city; without which, say the Directors, 'it could not be carried on a single session.'"

In regard to the third source of aid, it is thought that "efficient class instruction in the arts and sciences, and all appliances requisite to make that instruction effective, should be provided by the State where the means are deficient," and that the best available mode of doing this would be by a Parliamentary Grant. The advantages of a day-school in connection with an institution are strongly insisted on, as "the pupils, being admitted to the privileges of the Institution, learn to appreciate its advantages, and are likely to prove its firmest supporters." Besides, the Directors could then obtain a grant from the Committee of Council on Education in aid of the Building Fund. The Patricroft Institute, near Manchester, received a grant of 300*l.* out of an expenditure of 1,000*l.* in this way. The other points alluded to in this chapter are, the necessity for the regular collection of the unpaid subscriptions; that the work of the Institute should be paid for, and be done properly; that every available means should be used to keep the Institute constantly before the public; that its management should be as popular as possible; and above all things, that there should be an absolute avoidance of debt.

The chapter on the Union of Institutes, so peculiarly interesting to the Society of Arts at the present time, closes the Essay. After a cursory glance at the American Unions, and a short narrative of our own provincial Unions, most of which have become extinct, the question is asked, Why have these Unions not accomplished more? In reply, it is affirmed, that this must be attributed to their want of means, and to the opinion prevalent with the conductors of Institutions that for every farthing subscribed to a Union, an immediate equivalent should be returned. The advantages which a Union of Institutes should confer are stated to be of a twofold nature; first, those which belong to the general interests of all such Institutes,—a central body, acting for the general interests of adult education, urging the formation of Institutes where none at present exist, and improving less advanced Societies; and second, those which have special reference to each individual Institu-

tion. It might give important aid by the establishment of itinerating village libraries. It should secure adequate attention to the welfare of such Institutions on the part of the Legislature, of which two illustrations at once suggest themselves; the necessity for some Act to protect their property, and punish fraud and dishonesty, and the re-affirming the Act 6 and 7 Vict., c. 36, granting exemption to such Societies from local rates and general taxation. A thorough system of keeping their accounts in the best and simplest form is much desired; as is also a perfect code of rules. A National Union might issue a catalogue, or list of books, which would be valuable "not merely as suggestive of works to be bought, but, if judiciously done, as a guide in the selection."

Of the direct advantages which such an organisation might confer upon the individual Societies, first in importance is the Lectures. "There are two methods of economising the expense of lectures. One is by reducing the payment to the lecturer himself,"—a plan which is deprecated; and the other method "is that of arranging the engagements of the lecturer;" all that can be saved in this way being true economy. But if this organisation were perfected to the utmost, the lecturing system would not even then be brought to its highest state of efficiency. Scientific and practical lectures do not answer, pecuniarily speaking, so well as those of a lighter class; and the consequence is, that there is a strong inducement to discard them altogether. Now, it is in this branch that the Government assistance is essentially needed; and if it were given, "a large amount of systematic instruction in practical science might be conveyed." This plan has already been adopted in Ireland, with very great success. The Government grant of 5,000*l.* a year to the Royal Dublin Society to provide localities with lecturers, the locality visited having to defray a small portion of the expenses, has been attended "with very great success." One course in each session might be so supplied, and the remainder of the list could be filled up with gratuitous lectures, to be delivered by persons residing in the locality, who should be assisted by diagrams and apparatus furnished by the Union. Skeleton and manuscript lectures should also form a portion of its stock. "If the lectures are arranged to be delivered in the Institutes according to their geographical position—and no other plan is so economical of time, labour, and money—the arrangement of the order in which the places are visited *must rest with the managers of the Union, not with the committee of the Institute.* The utmost power that can be allowed them, is the negative one of declining any course of lectures." By its aid, too, local exhibitions might be materially assisted, "not only by furnishing contributions, but also by organising skill to bring them together;" and the formation of local museums—an object of great importance, and one which the Society of Arts has already dealt with—might be promoted by the exchange of specimens between different localities; a system which had produced most successful results in America.

In conclusion, Mr. Hole remarks that "nothing would more effectually disarm the hosti ity, secret or avowed, of the opponents of popular education, than a recognition of their [the Institutes'] objects by the State in the way recommended. It would also tend to attract the highest order of talent, both literary and scientific, to their lecture halls, and season the mediocrity which prevails there. Superior lectures would bring the middle ranks, superior class instruction would draw the operatives to the Institution; and thus a common ground whereon they could meet would be secured, and a friendlier, healthier feeling between the employer and the employed be promoted."

The above is a summary of the principal points alluded to in the Essay, which, it will be seen, contains much valuable information and many useful hints. It would be well that all Managers of Institutions, and others interested in their advancement, should make themselves thoroughly acquainted with the experience and practice here recorded.

HOME CORRESPONDENCE.

LECTURERS, LECTURES, APPARATUS.

SIR,—Referring to the Conference held at the rooms of the Society of Arts, on the 9th ultimo, I wish to express my acknowledgments for very many valuable suggestions which emanated from some of the Representatives present on that occasion. As might have been expected, there were various opinions on similar subjects, and different plans for accomplishing the same objects. Local circumstances, and habits, and experiences must be expected to exercise this kind of influence. At such a meeting it would be difficult so to extend the sphere of observation, and to generalize the subjects proposed for discussion, as to make men forget the individuality of each Institution. Whilst professedly and sincerely desirous of devising measures in which all could co-operate, by which all, in some degree, would be benefited, and to which all could cordially assent; there must necessarily be the promptings of something very much like self-interest,—a wish that all Institutions may prosper, but that ONE in particular might be the most prosperous.

For a period of more than twenty years I have known something about gratuitous lecturing; and, in common with many others, I have become familiarized with its toils and its pleasures, its rewards and—to complete the list, I suppose I must add—its discouragements. Still, I am disposed to look at the bright side. The discouragements have been few and unimportant; and if fairly weighed against past and prospective advantages, and in which others have not participated more largely than myself, I think they scarcely deserve the name I have given them.

My sole object, in obtruding a few thoughts on your attention, is with the hope of so setting before you the value of the services of gratuitous, or call them, if you please, amateur lecturers, that in any recommendations under the sanction of the Society of Arts, this useful class of labourers should not be overlooked. If I had been only an observer or a listener—anxious that a greater measure of success might be realized by Literary, Scientific, and Mechanics' Institutions—but without having put my hands to the work, or experienced any of the difficulties incident to the enterprise, I should not have ventured in this way to express my views.

Closely connected with, and, indeed, inseparable from the number and qualifications of lecturers, are the subjects on which they discourse, and the apparatus (tools?) they work with in illustrating and simplifying their themes. A few words on each of these topics will, I hope, fall by-and-by, into their proper places.

LECTURERS.—As a general principle I consider it an element of vitality, and one of the surest guarantees of usefulness and prosperity, that in Provincial Institutions there should be every possible amount of encouragement given to local (amateur) lecturers. This, of course, requires wise and judicious management; but wherever it is done, one of the main objects of the Institution is in a fair way of being realized, namely, the instruction of

the younger members is secured, and by an instrumentality that will insure a constant supply of willing and efficient teachers.

There are exceptive cases; but they are, comparatively, few in number. In some large towns, and other (supposed) favoured localities, where there is a good supply of literary and scientific men, it has been impossible, properly and legitimately, to sustain an Institution. Extraordinary efforts have been found necessary to keep out of debt; and in looking after the financial, there has been a sad neglect of the scientific, department. These are some of the difficulties, and they have rather increased than diminished. It is here especially that wise counsels and practical suggestions are most needed.

Looking at the number of members, the amount of subscriptions, the receipts and disbursements, the sums received for one class of lectures as contrasted with others, the newspapers and periodicals purchased, and the books circulated, is quite proper and absolutely necessary. This, however, is the lowest ground; and admitting that it must be carefully surveyed, let it not be forgotten that there are other and more important objects, which can only be seen by a wider range of vision, and at a greater elevation. If these voluntary Institutions throughout the empire are to continue to take part in the instruction of the people—(I will not say *education*—because I am not sure it is the right word); if they are to assist in dispensing exactly the kind of knowledge which their members most need, and at that particular period of life when they have no opportunities for obtaining it elsewhere; then is it deserving serious consideration how such Institutions shall be made permanently self-supporting, how they shall get a stronger hold upon those friendly to progress; and, as might then be expected, how they may be made more generally useful. Whatever be the process—whether by means of gratuitous or paid lecturers; whether by district or county organization, or by separate efforts; or a friendly amalgamation of some or all of these systems, certain it is that provision must be made for a larger amount of local elementary teaching—especially in the principal branches of natural science.

The necessity for this could soon be shown. I have never heard it denied. How it is to be accomplished by any of the instrumentalities which seem to have occupied the thoughts of the Institutes' Committee, and some of the Representatives, is not at present very apparent. We may be told that the teaching to which I have referred ought to precede the attendance on public lectures; that it must form a part of the educational process in schools; and that every system of education which does not include instruction in elementary science must be pronounced defective. It is easier to talk about these things than it is to do what we know and feel to be so necessary. Those who reason in this way have very little reason on their side. They require to know more of the practical working of by far the greater number of Institutions, before they will be competent to form a correct opinion. If we wait until *School* instruction shall supersede the necessity for *Institute* instruction, we may safely leave the matter where it is, to be thought about and cared about by the next generation.

It is not likely that the services of gratuitous lecturers have been intentionally ignored; but I agree with Mr. Turrell (see Journal, No. 30, p. 373), that the value and importance of their services were not properly recognised. Such neglect is very likely to produce "a feeling of discouragement." No new or additional sources of discouragement are required. The Society of Arts should do all they can to help those whom Mr. Turrell describes as having "mainly contributed to the promotion of national intelligence, and on whose exertions the country has *chiefly* to depend." Let the Society try to make their work easier, and, as far as it can be done, more agreeable. This will stimulate to renewed exertions, and these in due time will receive their reward. The field is large—the workmen are few. There should be no jealousies, no fears of over-crowding, no unnecessary interference with each other's spheres of labour. Whilst there is work enough, and room enough, for all, let us try and understand the duties and proper positions of all. Local (gratuitous) lecturers can scarcely expect to luxuriate in overflowing audiences and deafening cheers. Let them not be disheartened. The initiative still remains with them. They have helped to make professional (paid) lecturers; and when the latter shall have been multiplied twenty or fifty-fold their less practised, but not less earnest, amateur fellow-labourers will still have plenty to do. It will be no discredit to them then, any more than it has been in former days that they still constitute a (literary and scientific) corps of sappers and miners.

LECTURES.—A judicious selection of subjects, and appropriate illustrations, are equally important as an efficient staff of lecturers. Leaving ample margin for the general literature of history and biography, of invention and discovery, of music, poetry, and topics purely, or partly, imaginative; there should be a certain number of lectures every year, and in every Institution, on some of the branches of elementary science. These should be made as attractive as possible by varying the experiments, and by exhibiting every new fact as it is made public. One of the most important uses of Institutions is to impart this kind of instruction to many who are just entering upon the practical realities of life. In some instances only a very brief period is at their command, and, where there is a desire to improve it, the period is generally found too short. Hence the necessity for a little scientific training, for the young almost exclusively, season by season; lest any should miss an opportunity, which, once lost, may never return. If this object can be accomplished by class-instruction so much the better. In some cases it has been tried and failed—in others it has succeeded. Class-instruction implies class-teachers. These are not everywhere to be had.

As lecturers on scientific subjects, every encouragement should be given to the young. If they have a taste for science, and are willing to improve their opportunities, they should be helped in their efforts. Nothing, I think, could be more acceptable, or likely to do greater service to Institutions, than a series of lectures, say twelve to twenty, on the branches of natural science which can be most easily and effectively explained and illustrated by popular teaching. In the first trial, and not to incur too much expense, there may be only some general directions—an outline sketched by a skilful hand, and, on that account, the more likely to be properly filled up. I believe the plan would succeed, and that the Society of Arts would soon find its parental duties increase. From outline there would be only a short step to more complete lectures, comprising directions about the preparations for experiments, the apparatus to be employed, and engravings to illustrate the effects to be produced.

APPARATUS.—This is another of the difficulties. To expect to have expert lecturers without a proper supply of apparatus, is like asking an artificer to do a job of work without his tools. Here the assistance of the Society of Arts is again required; and in this particular

department its aids and influences may be most beneficially employed.

A practised lecturer knows that when his subject is susceptible of illustration, about four or five well-chosen, and skilfully-performed, experiments are sufficient. It is this which gives the professional lecturer some advantages as compared with the amateur. With his lecture, by frequent repetition, stereotyped on the mind; with an ample stock of apparatus, and the facility which experience alone imparts in the use of it; we might feel surprise, and something like disappointment, if one could not get through his work more easily than the other. Let me not be misunderstood. There are numerous exceptions to this rule. Many amateurs in science are well supplied with apparatus, and are as capable of using it for the benefit of others, as any who are paid for such services.

The cost of apparatus, the unfitness of a great deal of it for popular illustration, and the want of exactly that kind of practical skill in purchasing and preserving it, operate as hinderances to its more general distribution as a part of the instructional *materiel* in Institutions. How are these difficulties to be got over? I believe it is in the power of the Society of Arts to remedy the evil. Why not offer a prize for sets of apparatus adapted to different classes of subjects, made at a moderate price, and on a scale commensurate with the object? It is quite possible to illustrate many of the most interesting and important facts in natural philosophy by simple and inexpensive apparatus. Something should be done, and done quickly. Diagrams, tabular statements, and models are as necessary as apparatus. Everything should be on a large scale, capable of being seen at a distance, and by many persons at once. Let there be earnest efforts and co-operation—let the Society act upon the principle of helping those who are anxious to help themselves—let all things be conducted in a spirit of kindness, liberality, and, at the same time, real, as distinguished from false economy—and I venture to hope we shall soon be able to say in these matters, that the "good time" is not "coming," but that it has "come."

* * * *

Brighton, July 4th, 1853.

COTTAGERS' WELLS AND PUMPS.

Walford Manor, Salop.

SIR,—I beg to give you the results of my experience in obtaining convenient supplies of water for labourers' cottages, by very simple and inexpensive, but effective means, to the adoption of which I have been led by becoming acquainted, during my connection with successive Sanitary Commissions, with the absolute necessity of an adequate supply of water to the poor, within a moderate distance from their homes. In some parts of Shropshire such supply is very indifferent, the cottages being far off from any well, and the labourers having to go half a mile to a surface spring: the consequence is, that they have to carry the water to their houses day after day, with much trouble and loss of time. The cost and cartage of bricks, and the labour attending the construction of large draw-wells of four feet in diameter, are obstacles alike to the large and small farmers, that prevent such works being carried out beyond certain limits, and executed in those positions where only small supplies are required by the isolated cottager. In many of these cases only small supplies of water are required at once; and the springs, though only shallow, have a sufficient interval of time allowed them to regain their level. There are also many soils, not containing stones or beds of rock, which are easily cut into, and also at moderate depths yield the supplies of water thus required; such soils are those of a sandy, marly, clayey, or gravelly character. Into these, wells may be sunk to a depth varying from three to seven or eight yards, at points conveniently situated for one or two cottages, at a sum (including every expense of the pump and the sinking of the well) not exceeding from 3*l.* 10*s.* to 5*l.* The spot for the well having been selected, and a small circular space dug into the ground as a preliminary process, the sinking of the well itself is commenced by making a vertical opening a few feet deep by means of the ordinary boring auger, or cylindric scoop, three inches in diameter, which not only penetrates the ground, but brings up the soil which is detached and enclosed. An iron cylinder, half an inch thick in metal, five inches clear in its internal diameter, and four feet in length, having its lower circular end brought to a sharp bevelled edge, to penetrate the ground, with a collar or rim of wood, cordage, or some other soft substance, fixed over its upper end to prevent vibration, is then placed over the opening thus made, and driven down into the ground by means of a heavy wooden mallet. The auger is again employed to remove all the earth enclosed by this iron cylinder; and, in order to obtain a further downward-passage for the cylinder, a tool is used to loosen and clear away the earth from beneath its cutting rim: this consists of a rod with a cross-handle at its top, and a projecting claw fixed at a right angle to its lower end; so that on turning this tool round by its handle, the claw turns round also beneath and beyond the sharp edge of the cylinder, which is again beaten down by the mallet and the earth removed by the auger. The requisite number of successive cylinders are placed one upon the other, and beaten down as the lower one descends. The well in this manner is generally completed in a single day, provided all the preparations for it have been duly made. Its sides are encased from top to bottom by the iron cylinders in question. The bottom of the well is formed of a bed of gravel, shot down, when the water has begun to come, to the depth of a foot, which acts as a filter for the ascending water. The lowest iron cylinder has a portion of its sides pierced with small holes to admit a lateral supply from the surrounding soil. The pump, with its spout turned down and covered with a grating, and its leaden pipe of half an inch to an inch bore (supplied to me by Caswell, of Snow-hill, Wolverhampton), are then inserted, and the well-top is covered over as usual; the lower end of the leaden pipe, of globular shape, and pierced with holes, being let down into the water immediately above the bed of gravel. I have found the expense of such well and pump, about seven yards in depth, not to exceed 3*l.* to 5*l.*; and I understand that in cases where a greater number is contracted for, the expense might be still less. I think it is evident that pumps of this nature, with the implements and cylinders for forming the wells in question, could easily be conveyed in a cart at a very small expense; and although I feel great confidence in the success of the form of well I now venture to describe, I make the communication in the hope that such improvements may be suggested in its form and structure as will tend to its still further economical manufacture and convenient adaptation to its purpose. In these small wells and pumps, the water is constantly removed, and not allowed to remain stagnant sufficiently long to act upon the metal. I have not heard of any complaint of such impregnation in the pump-water. It is not used by the cottagers for washing, a pit or pond being gene-

rally at hand, where there is a collection of soft water. The leaden pipes in these wells admit of being at any time easily drawn up and examined. I have understood from Professor Way that the plan of Dr. Smith, of Manchester, has been adopted in many towns in Lancashire for coating iron. The tubes are made red hot, and then dipped into a liquid bituminous mixture, which gives them a strong and beautiful coating of japan. Perhaps this plan might be adopted in reference to the lowest cylinder of these pumps.

R. A. SLANEY.

LOCKS.

SIR,—On perusing in the Society's Journal a letter from Mr. Hobbs, who has obtained notoriety for his mechanical skill in opening or picking locks, manufactured by those who have hitherto been allowed to occupy the highest position in that branch of mechanism, I beg to state, that I was not aware (until I saw the above) that a premium had been offered for a good and cheap lock, or I should have been a competitor for the honour.

I have invented and patented a lock, which I do not hesitate to say, is the strongest, the simplest, and yet the most secure, and least liable to become injured by dirt, &c., of any others ever made; it is sold for 5*s.* and less, and although so low in price, I have no objection to Mr. Hobbs trying his professional skill upon it, using as many instruments, and of whatever kind he may please to select.

That gentleman is quite aware of having been invited on more than one occasion to try his skill upon the "English Protector Lock." He is conscious that it is exceedingly simple in its arrangement, having no detectors—no catch under the bolt, or loose stump as in his own, or any obstruction of the usual kind as a preventive to the bolt's passage. Standing alone—it possesses an original simple principle, distinct from all other locks. Unlike all other cheap locks, I guarantee this to be as secure as the most expensive. I cannot agree with your correspondent, P. L. O., that a lock, which in a few minutes may be picked, can be by any arrangement proved to possess great security; for the object of any lock, however moderate its price, and of any improvement in one, must, when practically and commercially considered, be to produce this result, namely, equal security, although at a diminished cost.

The originality of the principle upon which the English protector lock is contrived, consists in it being impossible to fix up the tumblers in succession as in other locks; for, after raising one tumbler, the attempt to do so with a second necessitates the fall of the first. A portion of the bolt is always jutting against a steel cylinder working in the top and bottom of the lock. This cylinder is so placed that it is impossible to move the key, or any instrument inside the lock, without, at the same time giving motion to it; and in any attempt to pick the lock, this cylinder will always prevent the bolt being pressed against the tumblers, thereby destroying the power to fix them in any particular position. It is only when the tumblers are all raised by the key to their exact position that the portion of the bolt described above can advance, and upon doing so, it passes under the key and enters the cylinder, filling an opening in it. It will therefore be readily understood, that supposing a false instrument be introduced, the tumblers will not be raised to their required situation; and, although one may be fixed, a second cannot be; for, immediately the attempt is made to remove the instrument in use, for the purpose of introducing others, motion is given to the cylinder, and, necessarily the bolt, immediately causing the fixed tumbler to return to its original position. It is only an instrument exactly like the key which will produce any effect, and of course one like the key would be the key, therefore, not picking the lock.

The above lock is made in unlimited quantities; without having any two locks the keys of which would suit each other.

Excuse my remarking, in conclusion, it is not *single* unpickable locks which manufacturers of locks care about, although they may be very interesting mechanical curiosities. It is to have an exceedingly simple and yet never-failing preventive to any one who endeavours to pick a lock, being able to ascertain the required position of the tumblers to effect this object. This preventive should be of one uniform shape or configuration, so as to dispense with mental labour on the part of the workmen, and thus enable quantities to be made at a price. The variation of each lock should consist solely in the tumblers, or in the depth of the notches in the key.

I am prepared to show, whenever it may be required, that *no lock has yet* been brought into manufacture by Mr. Hobbs, or any one else, which will equal the *English* protector lock in bearing an enormous amount of pressure upon the bolt.

After stating these advantages, I trust I may be acquitted of egotism, in believing this lock fulfils every condition required by the Society; viz., uncommon strength, and freedom from disarrangement by dirt, and at no risk to its security. It is sold at a price which challenges comparison with any unpickable lock of the day.

I am, Sir,
Yours respectfully,
THOMAS RESTELL.

LOCKS.

Sheerness, 9th July, 1853.

SIR,—The question of the propriety of awarding the prize to me for the lock, is one which belongs, of course, to the Society, and not to the inventor. I should, however, feel greatly obliged if you will make the following explanation public.

The Committee were satisfied that the idea was original to me, and I care not to disabuse the minds of other persons who may believe the poor mechanic to be guilty of piracy. As a general rule, it is not such as we who live on the wits of our fellows.

The only part of Mr. Hobbs' first letter on which I think an explanation is due, is that which refers to the insecurity of my lock against fraudulent attempts. Now, Sir, I must plead as my defence, that I did not conceive the idea until about a fortnight before the specimen was due, and could not apply myself for more than half an hour at a time to its manufacture, and not being a locksmith, I had the rudest tools imaginable. The consequence was that the specimen illustrated the principle, but did not defy the ingenuity of Mr. Hobbs, who had previously examined it, and discovered that neither the notches nor the rim were accurately made, either in form or corresponding dimensions. Had they been so, he would have had much more difficulty in succeeding.

Allow me to suggest that the comparison Mr. Hobbs is so desirous to make for the information of the Committee, might be of some advantage to himself. If Mr. Hobbs has ever seen Cotterill's lock (and I believe he has), he must be aware that the statement made in the

Journal of June 24th is altogether untrue; viz., "that my lock is precisely the same, both in principle and arrangement, as Mr. Cotterill's, without the slightest modification in fact, only differing from it in the inferiority of its workmanship." All this is untrue; and if no Member of the Committee requires to be enlightened by the comparison, Mr. Hobbs probably may.

It would have sounded somewhat strange if Mr. Hobbs had stated this one fact in connection with the above, that when Mr. Cotterill made him a very liberal offer if he would pick one of his locks, he declined, thinking it wiser to wait a little.

It is scarcely necessary to remind the public, that Mr. Hobbs is not the only individual capable of estimating the quality of locks; nor O. P. Q., who has at least made one discovery, viz., "that of course a small key is always a light one;" nor Mr. Tucker, who has got 100*l.* more than I have to spend in convincing the public that his lock and not mine should have got the prize.

Other men equally competent to form an estimate of it have assured me that of 100 persons who could easily pick a common lock, 99 would fail in picking mine were the parts accurately fitted; which might readily be done with the necessary machinery at a low price. Hence there is an advantage over common locks of 99 per cent. in point of security.

I am, Sir,
Your obedient Servant,
H. G. Saxby.

PROCEEDINGS OF INSTITUTIONS.

Allenheads.—On the 29th ult., Mr. Sopwith delivered a lecture to the members of the Library and Newsroom, on the subject of Benefit Societies, illustrating the origin of Tontines 200 years ago, and explaining the several tables of Expectation of Life, drawn up at different places. The accumulation of interest at 3 and 5 per cent. was exhibited by large diagrams, and the general principles of insurance companies explained. The large room, recently built for the accommodation of the miners as a reading-room and library, was completely filled, and the attention of every one present evinced how much they were interested in the subject. Mr. Sopwith drew especial attention to the excellent principle on which the patronage of Mr. Beaumont is bestowed; viz., by giving a donation of 5 per cent. on each year's current contributions, and 2 per cent on all properly invested funds; thus enabling the funds to accumulate at the rate of 5 per cent., by which in forty years the amount of accumulation is more than doubled, as compared with the ordinary interest of 3 per cent.

Portsmouth.—The Annual General Meeting of the members of the Portsmouth and Portsea Athenæum, was held in the Lecture-room, Bishop-street, on Monday evening. By the Report read by the Secretary, the financial affairs of the Institution appeared to be in a more prosperous state than they were at the last anniversary. Dr. Rolph was unanimously re-elected President of the Institution, and the following gentlemen as Vice-presidents: Messrs. J. Sheppard, G. Rylands, Rev. H. Hawkes, B. Bramble, T. Henderson, and J. Blake. The Rev. H. Hawkes having declined to serve as Vice-President, Mr. H. Lewis, being the next on the list, was declared elected. Mr. J. Horsey was re-elected Treasurer, Mr. Godfrey Secretary, and the following gentlemen as the Committee: Messrs. Rushbrook, Totterdell, Snook, Purchase, Andrews, O'Reilly, Hawkes, Moxon, Absalom, Digby, H. Emanuel, Cole, Howell, Stroud, Gore, Garnett, Falkner, Sothcott, Rockwell, Batchelor, J. White, Salisbury, Grover, and Pine.

TO CORRESPONDENTS.

Notice.—Members, and others, who can furnish or obtain original information or suggestions on the subjects included in the Society's Premium-list, or other topics connected with the Society's various departments of operation, are invited to communicate the same to the Secretary, in as condensed a form as possible, for the purpose of being either read and discussed at the evening meetings, or inserted in the Society's weekly Journal. Anonymous letters cannot be attended to. All communications, whether the author's name is to appear or not, must be accompanied by the writer's name and address.

Members of the Society who do not receive the Journal regularly, are requested to give immediate notice to the Secretary; and, in order to prevent mistakes, they are particularly requested to signify any change which they desire to have made in their address, with as little delay as possible.

Country Institutions.—Correspondents who are so good as to send reports of proceedings of Local Institutions, are requested to forward them immediately after the Meeting to which they refer, and not later than Tuesday morning, if intended for insertion in the following Friday's Journal.

"J. S., Islington."—The second prize for an "Essay on the History, &c., of Literary, Scientific, and Mechanics' Institutions," was *not* awarded.

MISCELLANEA.

Collection of Samples of Raw and Partly Manufactured Produce.—Her Majesty's Commissioners for the Exhibition of 1851 have just presented to the Society of Arts one of the thirty collections of Samples of Raw and Partly Manufactured Produce, which have been formed to meet the views of the Foreign Commissioners, who expressed a desire to be supplied with samples of British produce. This collection is confined, with very few exceptions, to the first four classes into which the Exhibition of 1851 was divided—namely, Class I. Mining and Mineral Products; II. Chemical and Pharmaceutical Products; III. Substances used as Food; IV. Vegetable and Animal Substances used in Manufactures; to which is added XXVII. Manufactures in Mineral Substances. It comprises 708 specimens, contained in twelve trays. The specimens have, in all cases, been furnished gratuitously; each contributor having been asked to send such samples of the articles exhibited by him in 1851 as he considered it was most desirable should be known in foreign countries. It will be remembered, that at the close of the Exhibition of 1851, the Royal Commissioners invited the exhibitors to furnish samples of the produce exhibited, with a view to their being preserved in some suitable place, and ultimately forming the nucleus of a collection of the various products of human industry of all periods and countries, to be arranged with strict reference to their commercial utility. This was referred to in the Second Report of the Commissioners, and it is now believed that some progress is being made towards the realization of such a plan.

Detection of Iron Shillings and Sovereigns.—By applying a small pocket magnet to a counterfeit coin of the above kind, it is instantly attracted, and may thus be lifted up from a table, whereas genuine coins are unaffected. A delicately-suspended magnetic needle is a still more sensitive indicator.

Cold Water Steam-engine.—Yesterday afternoon we visited the machine shop of Messrs. Burge and Johnston, to witness the performance of a new engine, styled as above, and recently invented by Mr. Edward T.

Tippett. The steam is produced without boilers, by simply injecting cold water into generators. The amount of steam required to force out or return the piston-rod is made by the introduction to the influence of the fire at each moment of precisely the quantity of water needed, thus doing away with the necessity of boilers. It is claimed that there is no possibility of an explosion, that greater power is obtained, and less room occupied for the necessary machinery. The water falls into the engine, being first raised by a force-pump into a reservoir situated above the engine, and thence inducted down as wanted. The engine is a singularly constructed piece of mechanism, both in appearance and mode of operating. —*Cincinnati Gazette.*

PAPER HOUSES. — Messrs. Biclefield have lately erected at their works near the Staines station of the South Western railway, several very neat cottages, commodious stores, and handsome villas, the whole of which, with the exception of the frame-work, the doors, and the flooring, which are of wood, are composed of papier maché. It is said that these houses, which contain from four to ten rooms each, can be taken down and re-erected within six hours; and that though it is thought they will be as durable as brick, their cost will be little more than one-third. The houses are all made with hollow walls, thereby excluding damp, and affording the means for ventilation. In the East Indies, the timber can be dispensed with, and the whole constructed entirely of papier maché, which from its poisonous nature is not liable to be attacked by the white ant.

THE EAST-INDIAN SALT-TAX.—From a petition which has just been presented to Parliament from the Bristol Chamber of Commerce, it appears that the cost of salt to the East India Company is at the rate of $\frac{1}{4}d.$ per pound; to this the Company add a profit at the rate of $\frac{3}{4}d.$ per pound, and suffer the dealers to traffic in the article, so that eventually the cost to the consumer is about $2\frac{1}{2}d.$ per pound, or 21*l.* per ton. Now the tax imposed by the Company on salt imported into India is said to be equivalent to the profit of $\frac{3}{4}$d. per pound, so that a monopoly is established for this prime necessary of life to the disadvantage of the poor ryot of India; indeed, it appears from statistical accounts which have been published, that the quantity of salt consumed in India is less than one-half that consumed in this country, relatively to the population, it being about 12lb. per head per annum in the former; and 25lb. per head per annum in the latter. The first cost of salt in this country does not exceed one-sixth of that manufactured in India; and the price to the consumer here is but about 30*s.* per ton, instead of 21*l.* per ton, as in India. If the tax and the monopoly were abolished, it is believed that salt manufactured in England could be exported and sold in Calcutta at from 40*s.* to 44*s.* per ton.

PARLIAMENTARY REPORTS.

SESSIONAL PRINTED PAPERS.

Par. No. *Delivered on 29th June, 1853.*

596. Durham Election—Minutes of Evidence.
665. Bills—Brecon Collegiate Church (as amended by the Select Committee.)
651. ,, —Parish Constables.

Delivered on 30th June.

564. Water-Rates—Return.
566. County Treasurers—Abstract of Accounts.
631. Poor Relief—Return.
640. Tubular Life-Boat—Copies of Correspondence.
684. Customs—Return.
685. Westminster Improvements Bill—Special Report.
671. Bills—Assistant Judge (Middlesex Sessions)
673. ,, —Land Revenues.
686. ,, —Leasing Powers (Ireland), as amended by the Select Committee, on re-commitment, and on consideration of Bill as amended.

Delivered on 1st July.

557. Juvenile Offenders—Abstract of Return.
575. Steam-vessels, "Pharos," &c.—Return.
647. Public Works (Ireland)—Return.
688. Bills—Elections (amended).
689. ,, —Sheriff Courts (Scotland) as amended in Committee, and by the Select Committee, and on consideration of Bill as amended.
690. ,, —Public Houses (Scotland), amended.

Delivered on 2nd and 4th July.

552. Corporal Punishments (Navy)—Return.
659. Bankruptcy Bill (Lords)—Minutes of Evidence.
694. Lough Erne Drainage—Copy of Report.
587. Clare Election—Report from Committee.
644. Hayleybury College—Copies of Correspondence.
699. Bills—Lunatics' Care and Treatment (amended).
670. ,, —Lunatic Asylums (amended).
672. ,, —Customs.

Delivered on 5th July.

416 (1). Rye Election (Further Inquiry)—Index to the Minutes of Evidence.
643. Vestry Meetings—Return.
652. Taunton Election (Second Case)—Report from Committee.
696. Bill—Belfast Municipal Boundaries (as amended by the Select Committee.)

Delivered on 6th July.

635. Workhouses (Ireland)—Return.
658. Lighthouses (Guernsey)—Return.
679. Improvement of Towns (Ireland)—Return.
706. Trade and Navigation—Accounts.
697. Bills—Charitable Trusts.
699. ,, —General Board of Health, No. 3.
709. Stamp Duties (No. 1), amended.
Colonial Land and Emigration Commission—Thirteenth General Report.

Delivered on 7th July.

614. Encumbered Estates (Ireland)—Return.
678. Towns (Ireland)—Return.
680. Property Tax (Metropolis)—Return.
682. Civil List Pensions—Annual Account.
702. Divine Service (Army)—Return.
714. Customs Officers (Canada)—Return.
710. Bills—Stamp Duties (No. 2), amended.
711. ,, —Public Houses (Scotland), as amended in Committee, and on consideration of Bill as amended.
712. ,, —Thames Embankment (as amended by the Select Committee).

Delivered on 8th July.

513. Poor-Law—Abstract of Return.
646. Ordnance—Returns.
708. Bill—Savings Banks (amended)
Republic of the Equator—Treaty of Friendship, Commerce, and Navigation.

Delivered on 9th and 11th July.

415 (1). Mayo Election—Index to Minutes of Evidence.
497 (1). Plymouth Election—Ditto.
595. Clare Election—Minutes of Evidence.
509 (1). Berwick-upon-Tweed Election—Index to Minutes of Evidence.
676. Graving Dock, Dublin—Copies of Correspondence.
667. Metropolitan Commission of Sewers—Return.
701. Poor Relief (Ireland)—Return.
726. Landlord and Tenant (Ireland)—Copy of Papers respecting Roman and Foreign Law.
407. (1). Public Works (Bengal, &c.)—Return.
716. Bills—Factories.
718. ,, —Expenses of Elections (as amended in the Committee and on re-commitment.)
721. ,, —Succession Duty (ditto.)
724. ,, —Coinage Offences (Colonies).
731. ,, —Encumbered Estates (Ireland) Act Continuance.
Emigration (North American Colonies)—Papers.
Public General Acts, Cap. 26, 27, 28, 29, 30, 31, 32, 33, and 34.

Delivered on 12th July.

491 (1). Income Tax—Return.
681. East India Proprietors, &c.—Returns.
722. Bills—Entry of Seamen.
723. ,, —Naval Coast Volunteers.
735. ,, —Ministers' Money (Ireland).

Delivered on 13th July.

707. Post Office—Return.
733. Bills—Tenants' Improvements Compensation (Ireland), as amended by the Select Committee, and in Committee.
734. ,, —Courts of Common Law (Ireland), as amended in Committee on recommitment, and on consideration of Bill as amended.
735. ,, —Ministers' Money (a corrected copy.)
Public Works (Ireland)—Twenty-first Report from the Board.

PATENT LAW AMENDMENT ACT, 1852.

APPLICATIONS FOR PATENTS AND PROTECTION ALLOWED.

From Gazette, 8th July, 1853.

Dated 5th Feb., 1853.

322. A. M. Massonnet—Improvements in alloys, &c., and application of same.

Dated 21st May.

1258. W. Chisholm—Purification of coal-gas, and obtaining therefrom ammonia and sulphur.

Dated 30th May.

1326. G. Wells—Materials for suction-hose, mill-bands, &c.

Dated 7th June.

1394. G. B. C. Leverson—Springs for carriages, &c. (A communication.)

Dated 13th June.

1434. G. A. H. J. Fermin—Construction of steam-boats.

Dated 23rd June.

1526. G. L. Stocks and T. Watson—Ships' square-sails, and reefing same.
1527. N. N. du Chastaingt—Improvements in bread-making.
1528. J. Burrows—Steam-boilers and furnaces.
1529. J. Burrows—Formation of metallic plates, to be joined by riveting, &c.
1530. T. W. Dodds—Manufacture of files, rasps, &c.
1532. J. Aspinall—A self-adjusting lamp. (A communication.)
1533. M. J. Cooke—Mill for crushing and grinding bones, grain, &c.

Dated 24th June.

1534. J. Horton—Steam-boilers.
1535. J. Rock—Spring or clasp knives, &c.
1536. N. C. Richardson—Improved capstan.
1537. G. S. Sidney—Improvements in jugs, &c.
1538. J. Webster—Distillation of fatty and oily matters.
1540. J. H. Johnson—Motive power. (A communication.)
1541. J. H. Johnson—Manufacture of flour.
1542. J. H. Johnson—Machinery for cutting paper, &c.
1543. J. M'Connell—Consumption of smoke.
1544. J. Lyle—Manufacture of figured fabrics.
1545. H. Goodall—Machinery for grinding or levigating various substances.
1546. Leon Valls—Production of printing surfaces. (A communication.)

Dated 25th June.

1547. D., A., and H. Illingworth—Machinery for combing wool, &c.
1549. J. E. Lightfoot—Manufacture of a colouring matter for dyeing.
1550. G. J. Mackelcan—Corn-dressing machines.
1551. A. Sandoz—Solar watch. (A communication.)

Dated 27th June.

1552. R. Harlow—Valves for baths, washstands, &c.
1553. R. A. Brooman—Printing designs, &c., on stuffs, &c. (A communication.)
1554. W. Fairclough.—Looms.
1555. J. Mason and L. Ryder—Machinery for preparing and spinning cotton, &c.
1556. A. V. Newton—Manufacturing resin oil. (A communication.)
1557. G. French—Axles and axletrees.

Dated 28th June.

1558. J. Jarman—Apparatus for measuring corn, pulse, &c.
1560. A. Brown—Cotton fabrics for ladies' underdresses.
1562. A. E. L. Bellford—Magneto-electric machines. (A communication.)

Dated 29th June.

1564. T. E. Irons—Manufacture of lasts and machinery for same, &c.
1566. P. A. L. C. de Fontainemoreau—Construction of furnaces. (A communication.)
1568. R. M. Sievier—Manufacture of piled fabrics, and machinery for same.
1570. G. A. Biddell—Apparatus for cutting vegetable and other substances.
1572. J. Tatlow and H. Hodgkinson—Improvements in smallware looms.

APPLICATION WITH COMPLETE SPECIFICATION FILED.

1589. John Jaques—Chess-boards and chessmen. 2nd July, 1853.

WEEKLY LIST OF PATENTS SEALED.

Sealed 8th July, 1853.

Year, 1853:

75. John Petrie, junior, and Samuel Taylor, of Rochdale—Improvements in machinery or apparatus for washing or scouring wool.
87. John Capper, of Manor House, Earl's-court, Old Brompton, and Thomas John Watson, of 3, Devonshire-terrace, Fulham-road — Improvements in preparing and bleaching jute and other vegetable fibres.
93. John Rumley, of South Shields—Improvements in pumps.
109. John Arrowsmith, of Bilston — Invention of a certain new or improved pumping machinery.
180. John Stevenson, of Dungannon — Improvements in machinery for spinning flax and tow.
312. George Letts, of Northampton—Improvements in machines for cutting and mincing meat and other materials for sausages and other like purposes, and for filling the prepared skins with the meat and other materials when so cut.
421. Charles Watt, of Selwood-place, Brompton, and Hugh Burgess, of 27, Grove-terrace, Kentish Town—Improvements in coating iron with copper and brass.
467. William Johnson, of 47, Lincoln's-inn Fields—Improvements in the treatment or manufacture of caoutchouc. (A communication.)
765. John Carter Ramsden, of Bradford, Yorkshire—Improvements in looms for weaving.
812. George Purcell—New method of adjustment in the art of printing, by means of certain combinations of various-sized spaces and quadrats.
906. John Wallace Duncan, of Grove-end Road, St. John's-wood—Invention of certain new combinations of gutta percha with other materials, and the method of applying such for use.
1010. John Hetherington, of Manchester, and John Dugdale and Edward Dugdale, of Blackburn—Improvements in constructing and applying models or patterns for moulding, preparatory to casting iron, brass, and other metals for various purposes.
1029. John Hetherington, of Manchester—Improvements in machinery for combing cotton, wool, silk waste, flax, tow, and other fibrous substances.

Sealed 9th July, 1853.

62. John Stewart Duncan, of Charing-cross—Improvement in rendering bottles, jars, and other like receptacles air and water-tight, and for raising and measuring the liquid contents thereof.
63. John Dean, of Whitstable, Kent—Invention of a new construction of diving helmet.
65. William Webb, of 5, Princes-street, Spitalfields—Improvements in the manufacture of carpets.
67. Frederick Schneider, of Berne, and 16, Castle-street, Holborn—Invention of a chair to be employed for preventing sea-sickness.
68. Alfred Vincent Newton, of 66, Chancery-lane—Invention of an improved mode of separating substances of different specific gravities. (A communication.)
898. Moses Robinson, of Brussels—Improved means for preventing accidents on railways.

Sealed 12th July, 1853.

78. Nathaniel Card, of Manchester—Improvements in candle-wicks.
82. John Arrowsmith, of Bilston—Invention of new or improved machinery for shaping metals.
88. Frederick and Alfred Lawrence, of City Iron-works, Pitfield-street, Old-street Road——Improvements in sluices and lock-gates.
90. Moses Cartwright, of Longton—Improvements in the preparation or manufacture of gypsum or plaster of Paris.
91. Charles Bullivant, of Birmingham, and Charles Hackney, of Ballsall Heath, near Birmingham—Improvements in certain kinds of spoons and ladles.
99. Arthur James, of Redditch—Improved means of inclosing needles.
286. Owen Williams, of Stratford, Essex—Improvements in water-closets.
1108. John Hetherington, of Manchester—Improvements in preparing cotton, wool, flax, silk, and other fibrous substances for spinning.

WEEKLY LIST OF DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

Date of Registration.	No. in the Register.	Title.	Proprietor's Name.	Address.
June 6	3483	Pencil-case.	James Hutton	60, Burton-crescent.
,, 7	3484	The Electric Gas-burner.	John Thomas Stroud	140, Suffolk-street, Birmingham.
,, 9	3485	Annular Fountain Reservoir for Liquid Compasses.	Frederick Dent	61, Strand.
,, ,,	3486	Fastenings for Window-shutters.	John Peakman	Birmingham.